Abstract

Background & Objective: Awareness of dental anatomy and morphological canal variations is essential for successful root canal treatment. The pulpal tissue of human teeth has many forms. Determining the internal anatomical connections prior to root canal treatment is crucial so that insufficient awareness will lead to an undesirable outcome of root canal treatment and may require root canal treatment or surgical intervention. CBCT images allow us to investigate three-dimensional root canal morphology and identify additional canals and roots. Since there are differences in root canal morphology in different populations and the results are very widely depending on the method, we decided to investigate the root anatomy of mandibular central and lateral teeth with CBCT archive in Ardabil.

Methods: In this descriptive study, CBCT images of 358 patients who have the inclusion criteria were evaluated. In this study, 358 radiographies were selected and systematically randomly sampled from CBCT images taken at the Oral and Maxillofacial Radiology Clinic by Panomeca promax 3D mid, using Romexis software,were studied. The data were analyzed in SPSS.24 software.

Results: All mandibular centrals and laterals were single-rooted and ٥٨% of centrals and 54.6% of laterals had one canal. The root of 50.55% of mandibular centrals was straight and for common curvature in the indirect roots in the right mandibular centrals is in the mesial direction and in the left centrals is in the distal direction. The root of 58.15% of right mandibular laterals was straight, whereas the root of most left mandibular laterals was curved. Common curvature in the indirect roots in the right mandibular laterals and in the left mandibular laterals is in the distal direction.

58% of mandibular centrals are classified as Vertucci Type I. After that, the most common type was Type III and the least prevalent was Type V. 50.55% of the mandibular laterals are Vertucci type I. After that, the most common type was Type III. The lowest incidence of right mandibular laterals was of type VI and the lowest incidence of left mandibular laterals was in association with Type V and VII.

Conclusion: The morphology and root canal system are different in different populations, and CBCT imaging is a useful and effective tool in detecting root canal anatomy. In the present study

in Ardabil population, all incisors examined had one root and 42% of centrals and 49.45% of laterals had two root canals. Finally, the results show that the root canal morphology in Ardabil population is different compared to similar studies with respect to population and ethnicity, sample size and method used.

Key Words*: Mandibular central, Mandibular lateral, CBCT, Vertucci classification*.